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NOTICE OF ALLOWANCE AND FEE(S) DUE

27367

7590

06/26/2009

WESTMAN CHAMPLIN & KELLY, P.A.
SUITE 1400
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MN 55402

EXAMINER

TSE, YOUNG TOI

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 06/26/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,570	10/28/2005	Bruno Jahan	T50.12-0003	9157

TITLE OF INVENTION: RECEPTION OF A SIGNAL MODULATED ACCORDING TO A MULTILEVEL CODING TECHNIQUE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	09/28/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

27367 7590 06/26/2009
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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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10/529,570	10/28/2005	Bruno Jahan	T50.12-0003	9157

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	09/28/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
TSE, YOUNG TOI	2611	375-341000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
 Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 726 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 726 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/529,570

Applicant(s)

JAHAN ET AL.

Examiner

YOUNG T. TSE

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 23 March 2009.
2. ☒ The allowed claim(s) is/are 18-49.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

EXAMINER'S AMENDMENT

1. Claims 18-49 are allowed.
2. The drawings were received on March 23, 2009. These drawings are acceptable.
3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. David D. Brush on June 19, 2009.

The application has been amended as follows:

Claim 18, line 7, "the steps" has been changed to "the successive steps"; line 8, "decoding," has been changed to "decoding;"; line 10, "level," has been changed to "level; and"; line 12, "and wherein" has been changed to "wherein"; and line 14, "robust level" has been changed to "robust coding level".

Claims 19 (line 2), claims 35 and 36 (line 1), and 39 (line 2), "robustness of" has been changed to "robustness to noise of".

Line 3 of claims 20, 23, and 43, "said steps" has been changed to "said successive steps".

Claim 20 (line 3) and claim 40 (line 4), "robust levels" has been changed to "robust coding levels".

Claim 21, line 2, "robust level are the most significant bits of said corresponding symbol" has been changed to "robust coding level are most significant bits of a corresponding symbol".

Claim 24, line 1, "wherein said method comprises" has been changed to "wherein said performing step implements".

Claim 25, line 2, "said iterations" has been changed to "said decoding iterations"; and lines 3-5, "symbol, said extrinsic information making it possible to improve the result of said steps of decoding of said following iteration or iterations" has been changed to "symbol".

Line 2 of both claims 26 and 46, "said received symbol" has been changed to "a received symbol".

Claim 28, line 1, the word "wherein" has been removed; and line 2, the word "comprises" has been changed to "comprising".

Claim 29, lines 1-2, "claim 18, wherein the method further comprises a step of determining a" has been changed to "claim 28, the method further comprising a step of estimating the".

Claim 30, lines 1-2, "wherein the method further comprises" has been changed to "wherein within one of said iterations of decoding, each of said successive steps of decoding of said at least one bit is preceded by a corresponding decoding step, the method further comprising".

Claim 31, line 1, "A method of receiving a signal modulated according to a" has been changed to "The method of decoding according to claim 18, the method further

comprising a step of receiving, by a receiver, prior to performing the decoding iterations, the signal modulated according to the"; and lines 2-3, "a distinct robustness to noise, said method comprising the steps according to claim 18" has been changed to "the distinct robustness to noise".

Claim 32, line 5, "comprising" has been changed to "comprising:"; line 7, "said steps" has been changed to "said successive steps"; line 8, "decoding" has been changed to "decoding:"; line 9, the term "wherein said device comprises:" has been removed; line 11, "level," has been changed to "level; and"; line 14, "and wherein" has been changed to "wherein"; line 15, "the robustness of said levels" has been changed to "the robustness to noise of said coding levels"; line 16, "robust level" has been changed to "robust coding level"; and line 17, "first" has been changed to "first".

Claim 33, line 1, "the coding/decoding" has been changed to "coding/decoding"; line 3, "comprises" has been changed to "comprises:"; line 5, "levels," has been changed to "levels; and"; line 6, "and at least" has been changed to "at least"; line 8, "of steps" has been changed to "of said successive steps"; line 9, "decoding," has been changed to "decoding:"; line 10, the term "wherein said decoding device also comprises:" has been removed; line 12, "level," has been changed to "level; and"; line 15, "and wherein" and "decoding said" have been changed to "wherein" and "decodes said", respectively; line 16, "the robustness of said levels" has been changed to "the robustness to noise of said coding levels"; and line 17, "robust level" has been changed to "robust coding level".

Claim 34, line 6, "said steps" has been changed to "said successive steps"; line 7, "decoding," has been changed to "decoding;"; line 9, "level," has been changed to "level; and"; line 11, "the robustness" has been changed to "the robustness to noise of said coding levels"; line 12, "a decoding order" has been changed to "the decoding order"; line 19, "the robustness of said levels" has been changed to "the robustness to noise of said coding levels"; and line 20, "robust level" has been changed to "robust coding level".

Line 2 of claims 37 and 38, "noise decode" has been changed to "noise of said coding levels decode".

Claim 40, line 1, "said means for implementing" has been changed to "said decoding means for implementing the".

Claim 41, lines 1-2, "robust level are the most significant bits of said" has been changed to "robust coding level are most significant bits of a".

Claim 42, lines 1-2, "comprising demodulation means activated" has been changed to "further comprising means for demodulating and de-interleaving, activated".

Claim 44, lines 1-2, "said device comprises decoding means for implementing" has been changed to "said decoding means implements".

Claim 45, lines 2-4, "said decoding means implements a step of estimating a sent symbol S_s , and a step of calculating an extrinsic information taking into account said estimated send symbol, said extrinsic information making it possible to improve the result of said steps of decoding of said following iteration or iterations" has been

changed to "said decoding means estimates a sent symbol S_e , and calculates an extrinsic information taking into account said estimated send symbol".

Claim 48, line 1, "wherein the device further comprises means" has been changed to "the device further comprising means".

Claim 49, lines 1-2, "claim 32, wherein the device further comprises means for determining a" has been changed to "claim 48, the device further comprising means for estimating the".

Claim 50 has been cancelled.

4. The following is an examiner's statement of reasons for allowance: the prior art fails to show, teach, or suggest that a method of decoding or a device for receiving a signal modulated according to a multi-level coding technique, using at least two successive decoding iterations by a decoder, wherein at least two coding levels each having a distinct robustness to noise and each successive decoding iteration comprising successive steps of decoding each of bits, at least one of the successive steps of decoding taking into account the result of at least one possible preceding step of decoding; determine the robustness to noise of the coding levels, wherein the robustness to noise of a coding level being inversely proportional to the error rate of the coding level; and determine a decoding order according to the robustness to noise of the coding levels, wherein, during the decoding iterations, the bits are decoded according to the decoding order taking into account the robustness of said levels, the

bits assigned to the coding level having a greatest robustness to noise, referred to as a most robust level, being decoded first.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is 571- 272-3051. The examiner can normally be reached on Monday-Friday 10:00-6:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on 571- 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/529,570
Art Unit: 2611

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/YOUNG T. TSE/
Primary Examiner, Art Unit 2611